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**HEALTH CARE NEEDS OF AIR FORCE WOMEN WITH CHILDREN
VERSUS WOMEN WITHOUT CHILDREN WHO WERE DEPLOYED
DURING OPERATION DESERT SHIELD/STORM**

By

CANDACE LEE MCCALL, B.S., D.V.M.

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Jack Hayes, Ph.D.

Dedicated to my daughter, Jacqueline with love and appreciation from her
“military mom”. You give me reason to go on when I think I can’t.

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THESIS

Presented to the Faculty of The University of Texas

Health Science Center at Houston

School of Public Health

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF PUBLIC HEALTH

**THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON
SCHOOL OF PUBLIC HEALTH
Houston, Texas
August 1996**

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Finally, I want to thank my daughter, Jacqueline, who kept her "terrible two's" down to a dull roar while I was working on my thesis.

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VERSUS WOMEN WITHOUT CHILDREN WHO WERE DEPLOYED
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The University of Texas
Health Science Center at Houston
School of Public Health, 1996

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This study compares health care utilization of women with children to those without children. Data was obtained from an Air Force statistical sample of 4700 active duty Air Force women who deployed to ODSS. Two hundred and twenty four participants completed an anonymous telephone questionnaire providing a variety of demographic and health care utilization information.

Results indicate there was no significant difference in health care utilization between women with children and those without children. One may expect women with children to experience more separation anxiety and stress, however, no differences in reported health problems or use of medical facilities based on organ system were reported. Nonetheless one troublesome finding was that a slightly higher percentage of women with children smoked than those without children.

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1. INTRODUCTION

"The US Armed Forces have a combined number of women approaching 350,000 and growing. These women are vital to the conduct of military operations and they must be fit and healthy to fulfill their military responsibilities. At the same time they confront health risks and special situations that few other US women encounter."¹⁹

On August 2, 1990 Iraq invaded Kuwait. This placed the sovereignty of Kuwait and the United States (US) interest in the Persian Gulf (and access to the region's vast oil supplies) at risk. Fearing that the Iraqi aggression would spill over into Saudi Arabia, President Bush organized a multinational coalition force composed mostly of NATO and Arab countries. Under the auspices of the United Nations, 540,000 US troops and other coalition forces were brought together in Saudi Arabia. This was the largest mobilization of US military personnel since the Vietnam conflict. Military operations began August 1990 (Operation Desert Shield) and continue today. The Persian Gulf War (Operation Desert Storm) began on January 16, 1991 and ended February 28, 1991. The name of the entire military operation is known as Operation Desert Shield/Desert Storm (ODSS).^{11,12}

One half million troops (approximately 12% women) deployed to the Persian Gulf. Almost half (47%) of the troops were not married, over 16,000 were single parents and 1,200 were deployed couples with children.^{3,6} Repeal of the Combat Exclusion Law opened up to women many more dangerous jobs including flying combat aircraft and serving on combat ships.^{14,22} For the first time in the history of the United States military, women with children were officially placed in direct combat.

Issues Raised In The Literature

It has traditionally been a women's place to take care of the children, to be the nurturers and provide support to the men who fight wars and are the sole "bread winners". With these traditions collapsing, the news portrays women as inferior mothers who leave their children to work in professions which have always been considered a man's domain.¹⁴

Women in the military are a unique population compared to their civilian counterparts. They undergo great physical and mental strain while deployed because war is an unknown entity.¹⁹ Separation from their family and support network, continual threats of biological and chemical warfare, boredom, and fear all afford a stressful environment which may increase medical and/or mental health visits^{30,32}

In ODSS, and in humanitarian missions such as in Haiti (Operation Uphold Democracy), psychological problems were highest during the first few months of deployment. However, the prevalence of psychological problems was much lower than in previous conflicts.¹⁷ Telephone access to call loved ones was available to most personnel during ODSS, a form of communication not generally available in previous conflicts. Increased access to communication may have contributed to the maintenance of positive morale within the unit.³⁹ However, this may have had a negative effect because most deployed personnel are younger and of a lower pay grade.⁴ Young couples are less aware of the stress of deployment and who to contact in the military system. Young spouses may not have the life experiences needed to cope with the increase in communication and deployed personnel may feel the stress of being away. In addition, young troops often lack financial stability.⁴

Stretch et al. found that during deployment to ODSS, 83% of veterans reported the primary cause of moderate or greater stress was lack of contact with family. In the same study, illnesses or other problems back home were stressors to deployed personnel 41% of the time and 55% of those stated it was moderately to extremely stressful.³²

Women generally report more tension and depression.³⁴ Reaction to stress also differs, at least externally. Women react to stress by talking or seeking medical help as compared to men who tolerate stress silently or drink/smoke more.³⁶

Perceived social support from family and friends is an important mediator of stress.¹⁵ Policies of commanders and military leaders can alleviate stress-related problems and increase family adaptation during deployment. A leaders ability to reduce feelings of distress is crucial in times of danger.³³ In addition, if the civilian or non-deployed spouse is supportive of the military and the woman's (or man's) role, the level of stress and anxiety will be profoundly lower for all involved including the children.²

Sexual harassment may cause increased utilization of health care.²⁴ According to a study of 193 members of the American Medical Women's Association, 54% of respondents in their sample encountered some form of sex discrimination. Twenty seven percent experienced sexual harassment and 24% complained of discrimination related to parenthood.²⁴ In another study, 90% of the surveyed women reported sexual harassment at some time while in the military. Culbertson and Rosenfeld found that 44% of 6300 enlisted women surveyed in 1991 were sexually harassed within the last 12 months. More than half of those harassed

reported they had developed symptoms such as headaches, difficulty sleeping, or nausea. As a result, 7% went on sick call and 16% took unplanned leave accounting for some 450,000 hours away from work.⁹

Separation anxiety can cause an increased number of visits by military wives to health care facilities.³¹ The amount of stress appears to be dependent on the number of children and their ages.³⁷ In prison, mothers have a greater amount of separation anxiety and stress than do women without children. Although the amount of anxiety decreases after six months, women with children continue to report higher levels than women without children.^{8,13,18}

Women utilize health care more often than men.^{16,27,34,35,38} Numerous reasons are proposed for increased usage: women seek medical care for attention in a male dominated world ; it is more "socially acceptable" for women to complain; women have a greater inclination to seek medical care; and women are the nurturers in the family, raised to be involved in family health.^{7,36} Women are also more involved with the health care of the family throughout their lives. Women with families notice symptoms of disease, attend to sick family members, make doctors' appointments and take children to medical providers.^{16,36} Graham states "Women, even when they work full time, do most of the day to day health work on behalf of both themselves and their partner."¹⁷

Women may utilize medical care more often than men during deployment because they (usually) have greater access to medical care by virtue of assignment to support units.¹⁹ Men learn as young boys that it's not masculine to complain about medical problems.⁷

Women seek medical attention earlier, when medical conditions are still acute, while men wait until conditions are chronic. Men are seen fewer times in the health care facility but the condition is often more advanced and hospital stays are longer.^{16,22} During ODSS, respiratory problems were the leading reason for health care visits in men and women. Women sought medical care more often than men even when gynecological and/or reproductive visits were eliminated.²³

According to the Air Force Behavioral Risk Factor Surveillance Study (BRFSS) done in 1996, 76% of Air Force personnel rated their health as very good to excellent.¹ In the general population, most women report their overall health as excellent or good. However some groups, for example single mothers with dependent children and women living in low income households, frequently assess their health negatively.¹⁷ Single mothers in particular, report higher levels of illness than either married women caring for children or single fathers. In addition, all working mothers reported worse health than single mothers who were not employed outside the home.²⁵

Just prior to ODSS, re-enlistment rates were declining, however they increased during the war and continue to increase. In 1991 almost 60% of the women re-enlisted after their first tour of service and by 1996 the rate was up to 64%*. Hoiberg and Ernst in 1982, reported pregnancy related conditions (10.9%) as the second most common cause of a women leaving the military. The most common reason cited was "unsuitability". They also reported

* Personal communication with DPSA Plans and Analysis Division at Randolph AFB.

that women often choose to remain on active duty because it provides financial stability, medical care for active duty personnel and their dependents, job satisfaction and challenge.²¹

Information Gap

“...during the 20th century women have made steady incursions into male-dominated areas in general, and into the military services in particular. In 1948, the Women Armed Services Integration Act was established; it provided permanent military status for women and included combat exclusions for women in the Air Force, Navy and Marine Corps.”¹⁰

The gender difference debate has been ongoing for decades with no clear resolution.^{16,23} Even after 50 years of military service, the information gap relating to medical care for deployed women is remarkable. In 1995 the Institute of Medicine made recommendations for research on the health of military women. The committee recommended gathering more data on “health care concerns and needs, obtained from women themselves”.²²

2. PURPOSE

The purpose of this study is to analyze demographic data on mothers who deployed to ODSS and to determine if women with children who deployed to ODSS had specific health care needs compared to women without children.

3. MATERIALS AND METHODS

Using data from the Department of Defense Desert Storm File, a stratified random sample of 224 United States Air Force female ODSS veterans was professionally interviewed by telephone for an Air Force study.²⁹

Several specific demographic questions were asked (Appendix A). The study divided marital status into four groups: never married, married, divorced and single. For some data analyses marital status was combined into two groups: married and single. Single women include those never married, divorced or separated. Separated was included in the single woman category to analyze the effect of being a single mother. Age groups were combined into 6 categories: 19-24, 25-29, 30-34, 35-39, 40-44 and over 45 years.

A positive answer to emotional health problems referred to depression, situational reactions, anxiety, psychosis, suicidal tendencies, behavioral reaction and any other problems the participant thought related to emotional disturbances while deployed (Appendix A, Question 6f).

Data was analyzed using SPSS, Epi Info 6.2 and Excel. Frequencies, cross tabulations, Pearson Chi Square and Mantel Haenszel were used for statistical comparison. A Fisher's exact test was applied in cells numbering less than 5. Statistical levels are included with the tables using a 95% confidence interval.

4. RESULTS

Age

The median age of women in the study was 27 years with a range of 19 to 47 years (Figure 1, Table 1). Women with children were generally older (median 31) than those without children (median 25).

Rank

Over 75% of the women in the study sample were enlisted, 55% were ranked as E-4 (Sergeant) to E-9 (Chief Master Sergeant)*. Of the women with children, 66% were enlisted and 34% were officers (Table 2). Women with children were almost equally distributed in age categories across the enlisted ranks. Women officers with children were older with 33.3% (the mode) in the 30 to 34 age category (Figure 2).

Education

In order to enter the Air Force, personnel must have at least a high school diploma (for enlisted) or have completed college (for officer). Of the women with children 33% had greater than 16 years of school and of women without children, 28% had completed greater than 16 years of school.

Marital Status

At the time of deployment, 47% of all women in the study were never married, 42% were married, 10% were divorced and 1% separated, Figure 3. After deployment 33% of the married women divorced. Of the women with children, 73% were married, 11% were never

* Enlisted ranks in the Air Force are E-1 to E-9. Personnel begin as E-1.

married, 14% were divorced and 2% were separated prior to deployment. Of women without children, 8% were divorced (Table 3).

When comparing the groups who divorced within 5 years after deployment women were deleted if they, at the time of deployment, were never married. After deployment 29% of women with children obtained a divorce compared to 27% of the women without children (Figure 4). Although a large number of women obtained a divorce after deployment, no significant difference occurred between women with and without children. Approximately 25% of both groups of women had spouses who were also deployed to ODSS.

Children

Of the 224 women surveyed 64 (28.4%) were mothers. The majority of women deployed had only one child (58%) and only two women had three. Women had an average of 1.4 children with a median age of 9 years (Figure 5). Ages ranged from 1 to 20 years with 12.5% of women having children less than 5 years of age. Type of child care did not differ between married and single mothers - most used relatives. Some women (particularly married) used multiple sources of child care such as friends, relative and day care.

Active Duty Status After Deployment

All of the women in this study were on active duty at time of deployment. Over 52% have left active duty since ODSS. Approximately 61% of the women with children are no longer on active duty as compared to 49% of the women without children (Figure 6, Table 4).

Of women with children 65% of the single women left active duty compared to 60%

of the married women. Marital status did not affect retention even when categorized by whether they had children or not.

In the 19-24 age category, 43% of all women left active duty and separations declined as age increased (Figure 7, Table 5).

Enlisted women (E1-E9) without children left active duty more often than those with children (83% vs. 58%). Of the officers, 42% with children left active duty as compared to 17% of women without children (Table 6).

When rank and age were compared, 97% of the enlisted women in age range 19 to 24 and 79% in the 25-29 range separated from the Air Force (Figure 8). More officers left active duty in the 40 to 44 year old (50%) and over 45 year olds (100%).

Medical Conditions

The most prevalent self-reported medical condition was gastrointestinal disease (74% of all women), Figure 9. Forty-five percent of women with children reported gastrointestinal disease as compared to 28% of the women without children (Table 7).

Overall, 17.5% of all women surveyed reported having emotional health problems. However, when the two groups of women were compared, they were almost exactly the same with 17.2% of the women with children and 17.6% of those without children reporting emotional problems (Table 8). Women with children, however, reported a higher rate of emotional health problems after deployment (64%) than women without children (39%) (Table 9). Emotional health problems did not differ significantly by age groups (Table 10).

Health Care Utilization

Almost all women (94%) in the study utilized health care. Utilization of health care did not differ significantly between women with children (92%) and women without children (96%) (Table 11). The highest health care utilizers in women without children were in the 19 to 24 age category compared to 30 to 34 year olds in women with children (Figure 10, Table 12).

Thirty to seventy percent of women with medical conditions such as gastrointestinal and respiratory problems sought medical care, however, fewer than 30% with emotional health problems sought medical care. This did not differ between women with children and those without children.

Health Status

Most women (87%) described their health prior to deployment as very good to excellent. After ODSS, only 64% rated their health as very good to excellent.

Prior to deployment fewer women with children (83%) compared to women without children (89%) rated their health as very good to excellent. After deployment the percentage of women rating their health very good to excellent dropped to 59% and 67% respectively (Figure 11, Table 13).

Physical Fitness

Preceding deployment 68% of women stated their level of physical fitness as very good to excellent. This level of physical fitness decreased slightly to 61% after deployment.

Fewer women with children rated their physical fitness as very good to excellent (62.5%) as compared to women without children (70%). Reported physical fitness status for both groups of women decreased after deployment to 53.1% and 64.4% respectively. (Figure 12, Table 14)

Smoking

Of 224 women in the study, 29.5% smoked before deployment and 32.6% during deployment. Although a slightly greater percent of women with children smoked than those without children the difference was insignificant.

Smoking increased slightly during deployment for women with children and without children but the increase was insignificant. (Figure 14, Table 15)

5. DISCUSSION

This research is concerned with potential limitations and/or problems related to sending "mothers" to war. Five issues were examined; family disruption, child care, continuance of military service, medical status, medical problems and health care utilization.

Family Disruptions

The Air Force understands that when families are disrupted, job effectiveness may be reduced and therefore divorce is an important entity in this study. More women divorced in the 5 years after deployment than were divorced going into ODSS. Prior to deployment, divorce rates were comparable to the Air Force as a whole which generally has a rate of approximately 11% in women.* Although having children did not affect the rate of divorce, war might.

Child Care

Child care is thought to be the biggest problem in deployments and yet in this study relatives were the primary child care providers while women were away. It would seem that relatives would be the ideal care givers there is no way to determine their relationship, if the care was difficult to get, and if the care was adequate. Married women probably used a greater variety of child care because the father (classified as a relative) worked and therefore day time child care was needed.

* Defense Manpower Data Center: by personal phone conversation in June 1996.

Continuance of Military Service

The study statistics were comparable to Air Force - wide statistics in which approximately 40% of the women separate from the Air Force after their first term.

Military personnel can generally retire after 20 years of service (15 years for some professions). If a woman enlisted at the age of 19 or 20, or was commissioned (officer) at age 21, she would be eligible to retire after reaching 40 years of age. However, retirement would not account for the large numbers of enlisted women who left military service in the 19 to 24 and 25 to 29 year age categories. Perhaps women in this age group are leaving to marry and have families. Or maybe the possibility of going to war is a forgotten entity when people initially enlist. Many news reports talked of "conscientious objectors" and people enlisting in the military to "get an education", never thinking they would actually have to fight a war! The actuality of war and all its fears, stresses and separations become a reality many women (and men) may not want to face again.

Women with children generally chose not to remain on active duty. Women probably don't want to be separated from their children under war time circumstances again and decide to leave the service.

Overall Health Status

All women in this study reported their physical fitness and health status declined after deployment. Women with children rated their health status lower than women without children, which mirrors previous studies.^{17,25} The decline in health status was quite high, 24 % of women with children and 22% of women without children.

I was amazed to find that women with children smoked as much those without children - both before and during ODSS. The recently completed BRFSS study suggests smoking rates are generally declining.¹ However I have found no data either published or through personal communication regarding mothers smoking behavior. Smoking cessation is a high priority in the Office of the Air Force Surgeon General and should be looked at in more detail to determine it's prevalence in mothers.

Medical Problems and Health Care Utilization

Hines, an Army officer, found the highest rate of medical care related to respiratory conditions. However in this study gastrointestinal conditions were the principal complaint. This may be a reflection of the different services. Army units are normally deployed in the field environment whereas Air Force units are more often deployed in hardened facilities (hotels, buildings) near air fields. In addition Hines, used medical record extraction, and maybe women did not think gastrointestinal problems were severe enough to seek medical attention therefore were not counted in his study.²⁰

Because of the stressful environment and long term separation associated with deployment to ODSS women with children were expected to have a significantly higher frequency of emotional problems (separation anxiety) than those without children. However, women with children reported almost exactly the same number of emotional problems as those without children. Women with children may actually have less overall stress while deployed than when at home. They no longer have multiple responsibilities of the household, finances, and children. An unexpected finding was that emotional problems in women with children

persisted after returning from ODSS. It would be interesting to determine if children, war, or spouses caused the emotional problems to persist.

An interesting finding was women with gastrointestinal problems sought medical care whereas those with emotional health problems did not. Women (and men) in the military often do not wish to seek help for emotional problems because they are embarrassed and believe it will adversely affect their careers. Perhaps chaplains were used, whose sessions are private and confidential or maybe this is an unfulfilled need.

Overall women in this study were high health care utilizers. Women with children did not use health care more often than women without children.

Bias

Participants in this study were interviewed 5 years after the Gulf War therefore recall bias is always in question. Research has shown, that women have good recall for significant life events, particularly those related to health.⁵ If recall bias were a factor, disease would be underestimated due to forgotten and therefore under-reported medical/emotional problems. Additionally, classification bias is possible. When determining the type of medical care sought there is a gray area between classification of psychological and physical illnesses. Women may not relate psychological problems to physical illness, thereby underestimating the level of emotional problems.

6. CONCLUSIONS

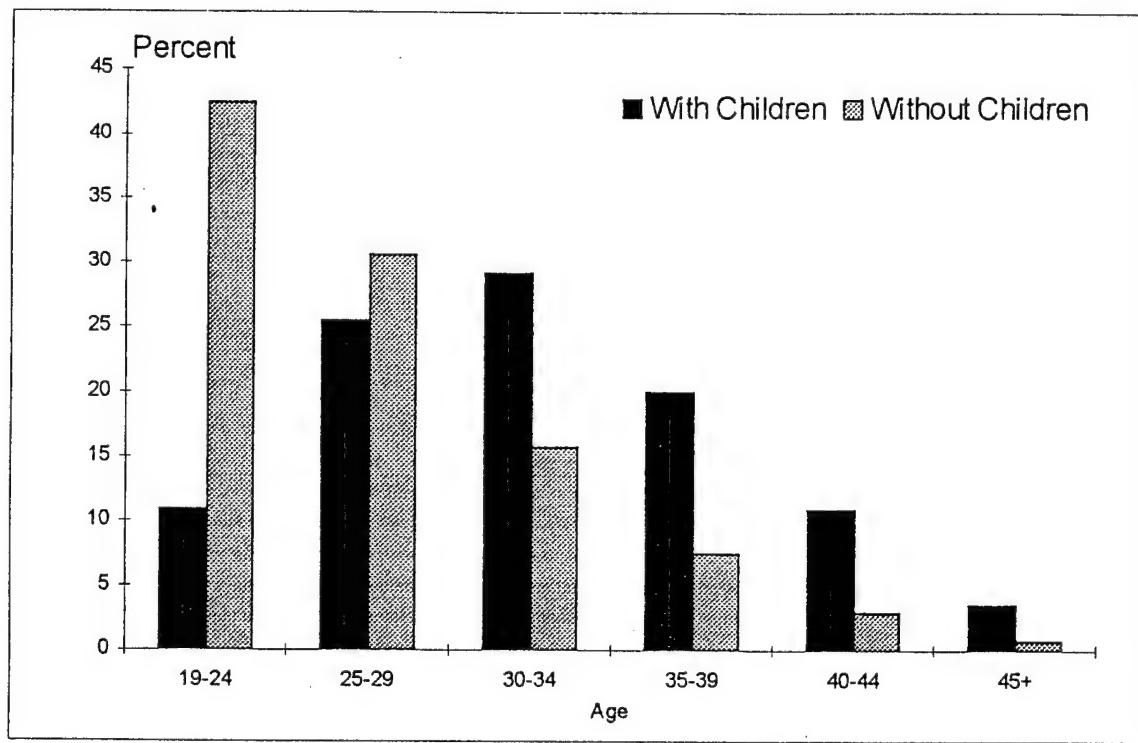
This study shows that, during deployment to ODSS, women with children did not utilize health care more often than women without children nor did they have special health needs. Having children and being deployed did not affect divorce rates, but deployment itself might have increased the divorce rate.

During the war there was a great deal of trepidation and publicity regarding women going to war, especially women with children. This study should help alleviate some of the uneasiness. However, there are some questions which need to be answered. The number of women in this study who had emotional problems was low therefore it is difficult to assess the true prevalence of it's persistence after ODSS. Emotional problems need further study as well as determination of the reasons overall health and physical fitness of women decreased. Most troublesome is the question of why mothers smoked as much as women without children, perhaps more education is needed. Lastly, when overall re-enlistment rates of first term female airman increased during and after the war, why did such a substantial number of young (19 to 29 year old) female airman separate?

FIGURES

FIGURE 1*

**Comparison in Ages of Women in the Study
Who Deployed To Operation Desert
Shield/Storm**



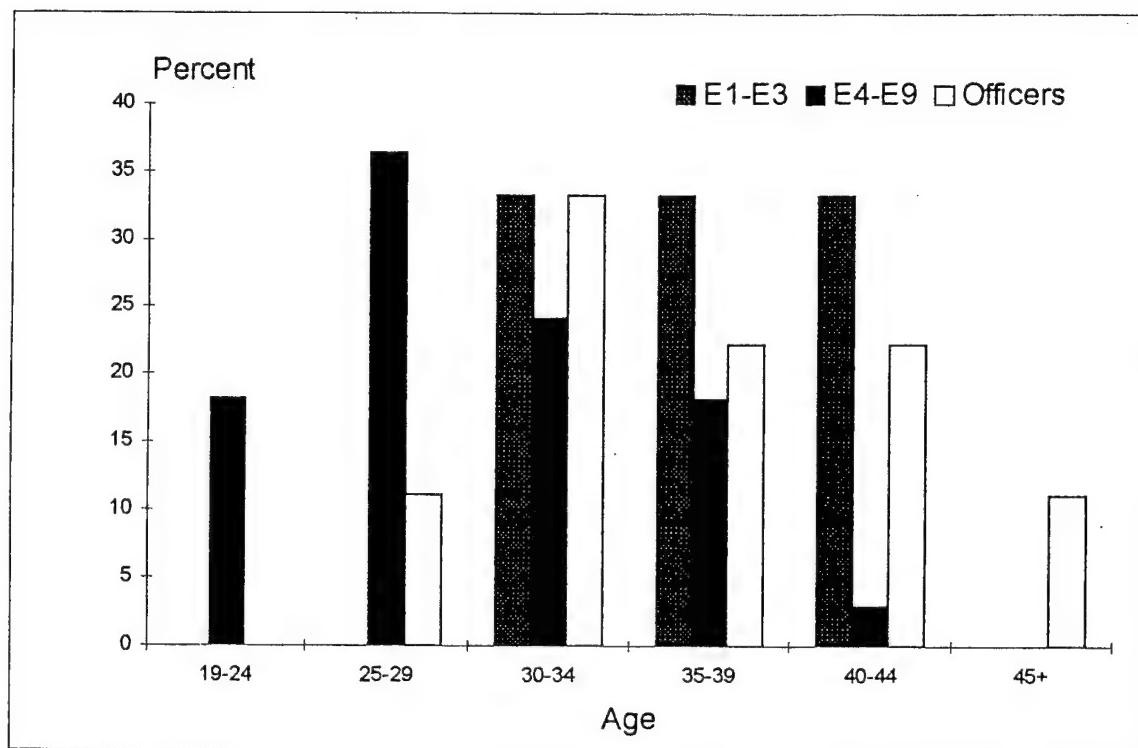
Median Age of Women With Children = 31 Years
(n = 55)

Median Age of Women Without Children = 25 Years
(n = 134)

* Table 1 gives frequencies for this figure.

FIGURE 2.

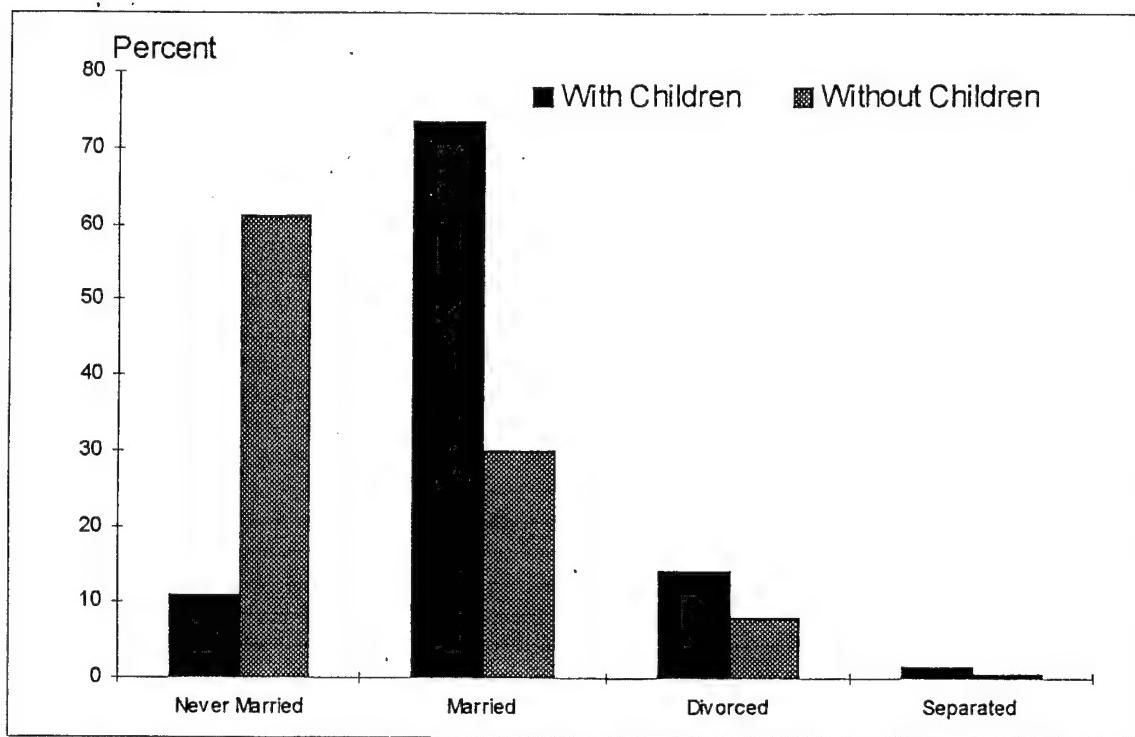
**Comparison by Age and Rank of Women With Children in the Study
Who Deployed to Operation Desert Shield/Storm**



Women With Children Who Responded to Question: n = 54

FIGURE 3.*

**Marital Status of Women in the Study At Time of Deployment to
Operation Desert Shield/Storm**



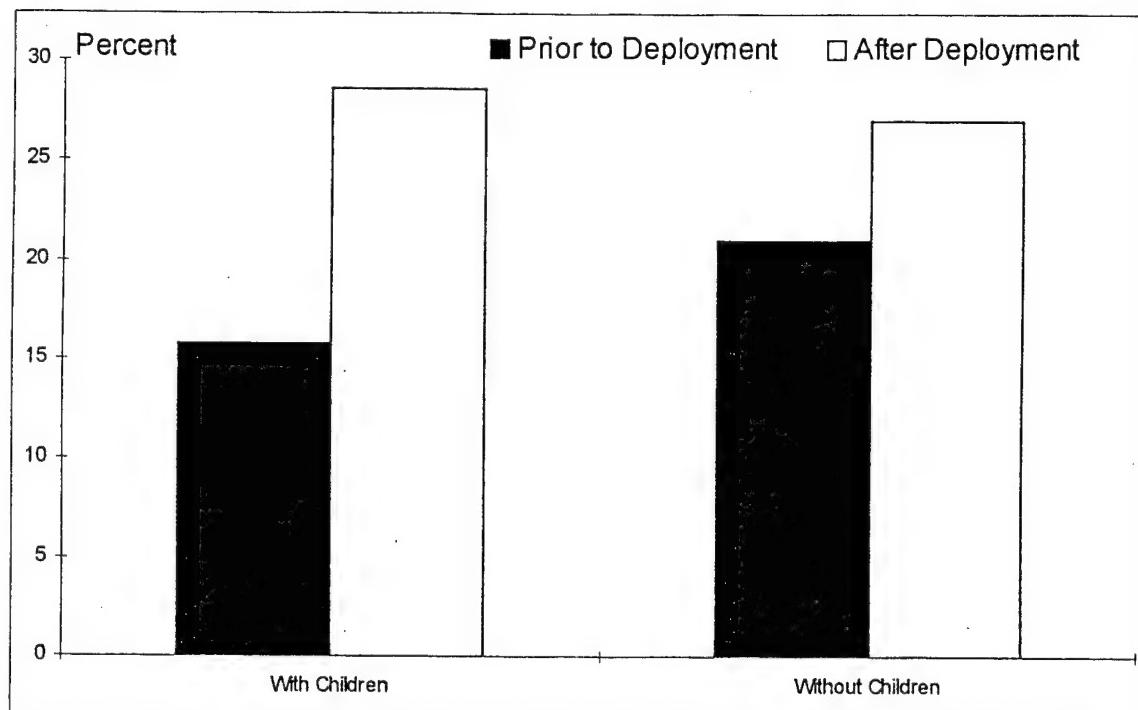
Women With Children: n = 64

Women Without Children: n = 160

* Table 3 gives frequencies for this figure.

FIGURE 4.

Comparison of Women in the Study Who Divorced Before and After Deployment to Operation Desert Shield/Storm



Women Who Divorced Before Deployment: n = 22
(With children = 9, Without Children = 13)

Women Who Divorced After Deployment: n = 33
(With Children = 16, Without Children = 17)

FIGURE 5.

**Ages of the Children Whose Mothers Deployed to Operation Desert
Shield/Storm**

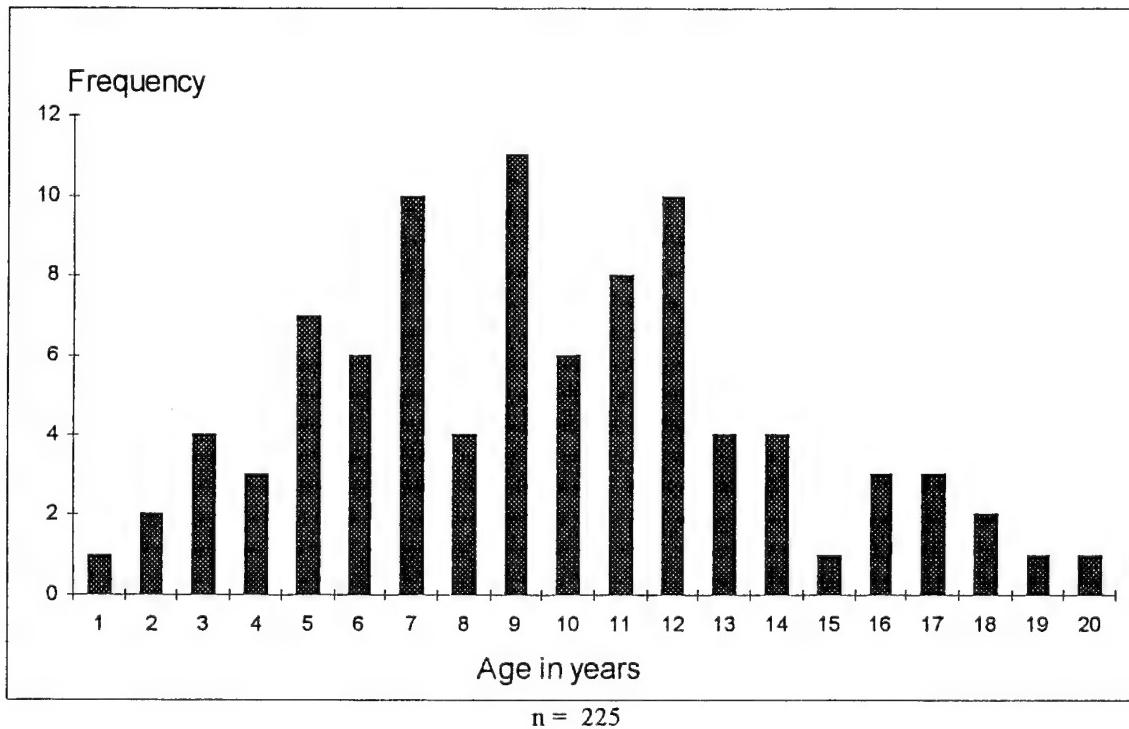
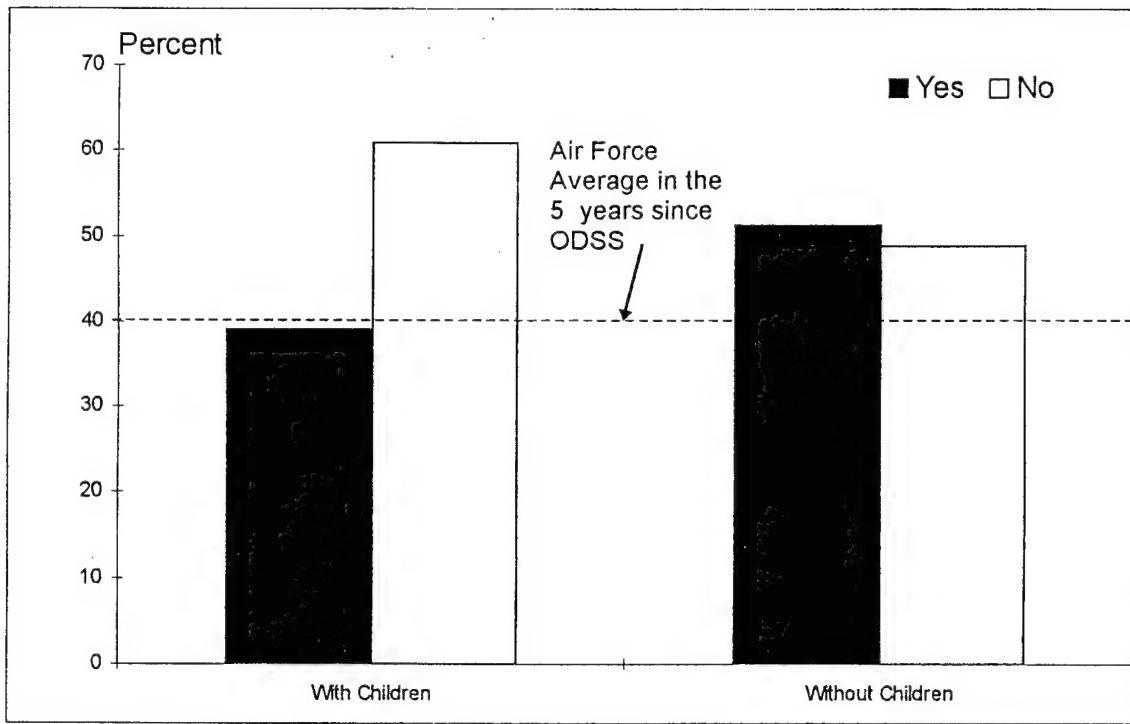


FIGURE 6.*

**Comparison of Women Who Remained On (yes) or Separated From (no)
Active Duty After Deployment to Operation Desert Shield/Storm**



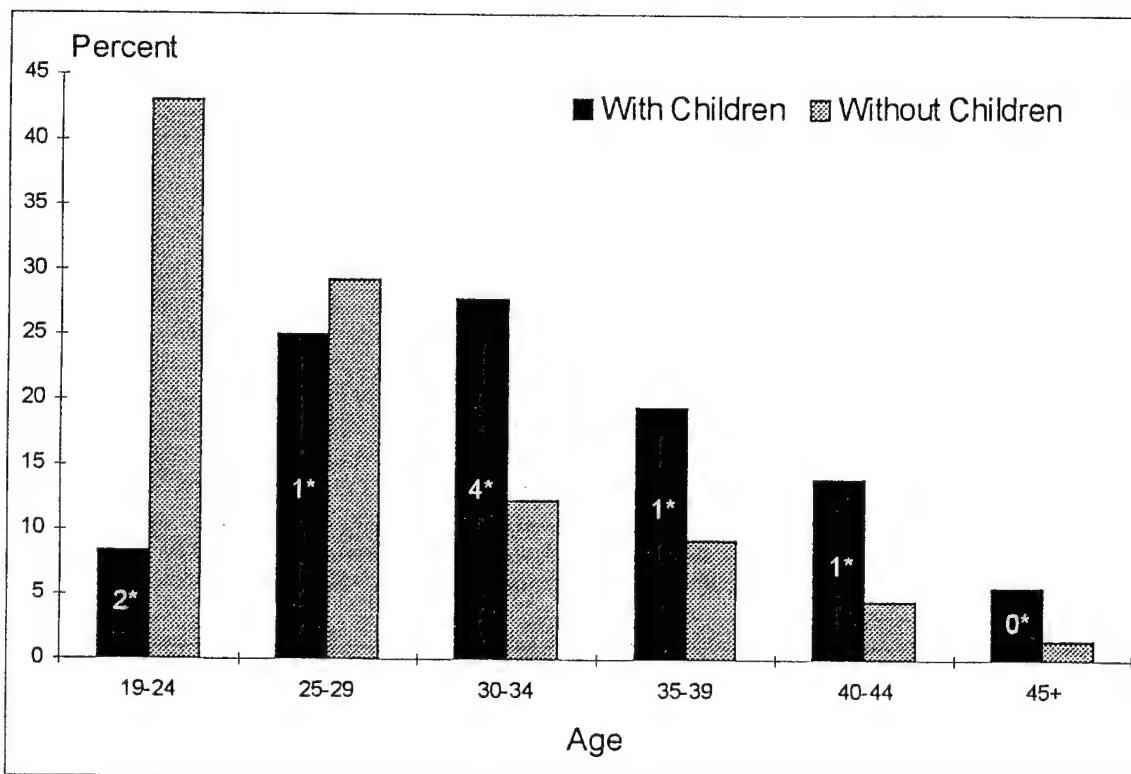
Women With Children Who Remained on Active Duty: n = 25

Women Without Children Who Remained on Active Duty: n = 82

* Table 4 gives frequencies and statistical values for this figure.

FIGURE 7.*

Age Comparison of Women in the Study Who Separated From the Air Force Since Operation Desert Shield/Storm



Women With Children Who Separated From Active Duty: n = 39

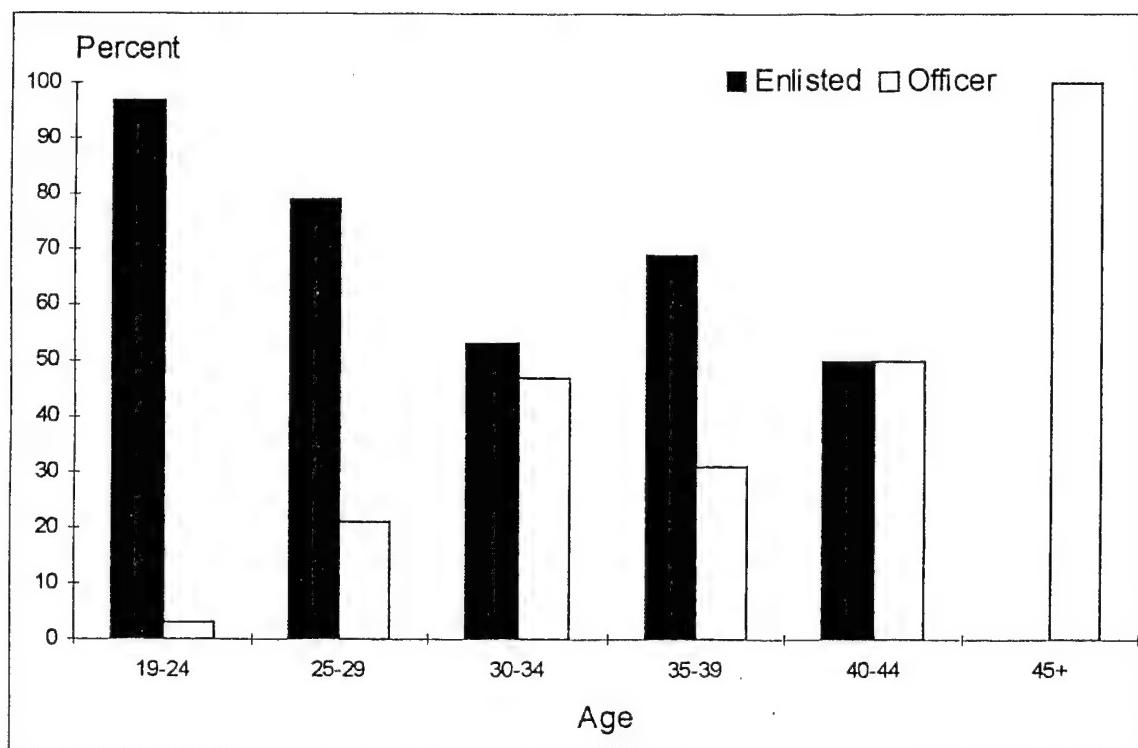
Women Without Children Who Separated From Active Duty: n = 78

Numbers Represented in the Black Bars = Number of preschool children (less than or equal to 5 years of age).

* Table 5 gives frequencies and statistical values for this figure.

FIGURE 8.

Rank Comparison of Women in the Study Who Separated From the Air Force After Operation Desert Shield/Storm



Enlisted Women Who Separated From Active Duty: n = 81

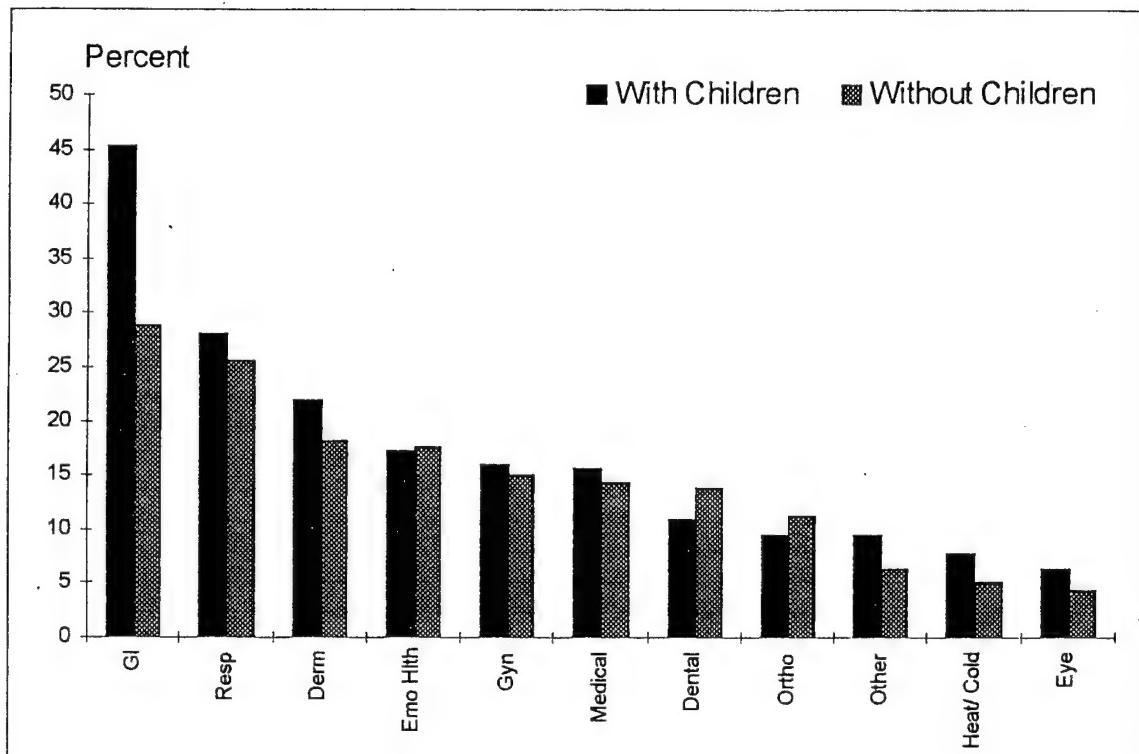
Remained on Active Duty: n = 87

Officer Women Who Separated From Active Duty: n = 25

Remained on Active Duty: n = 29

FIGURE 9.

Self-Reported Medical Conditions of Women in the Study Who Deployed to Operation Desert Shield/Storm

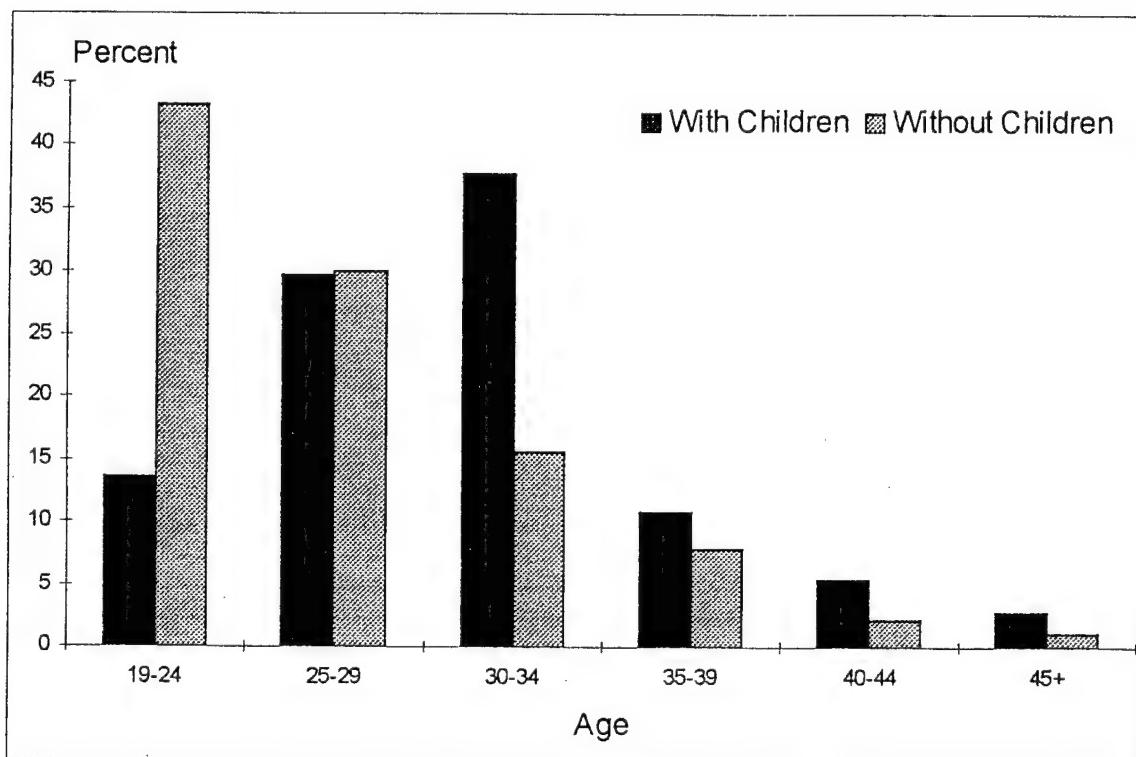


Women With Children: n = 64

Women Without Children: n = 160

FIGURE 10.

**Comparison by Age of Women in the Study Who Utilized Health Care
During Operation Desert Shield/Storm**

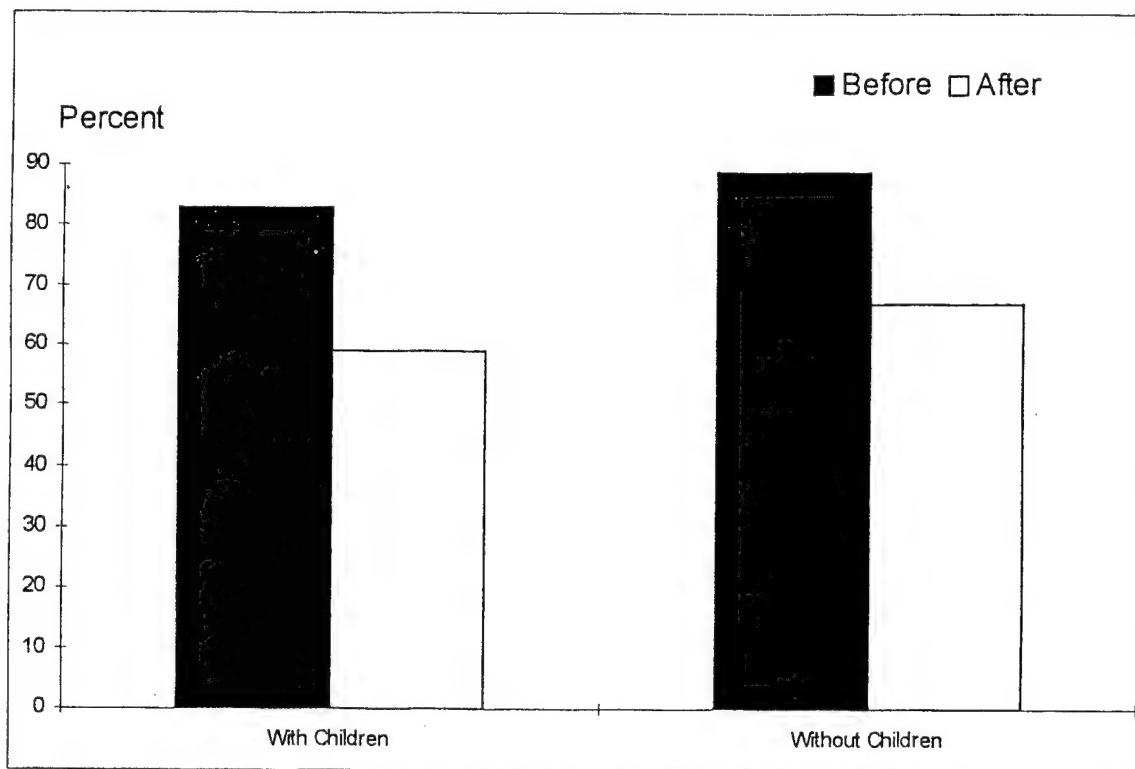


Women With Children: n = 37
Women Without Children: n = 90

* Table 12 gives frequencies and statistical values for this figure.

FIGURE 11.

Women in the Study Who Reported Their Health Status as Very Good to Excellent Before and After Deployment to Operation Desert Shield/Storm



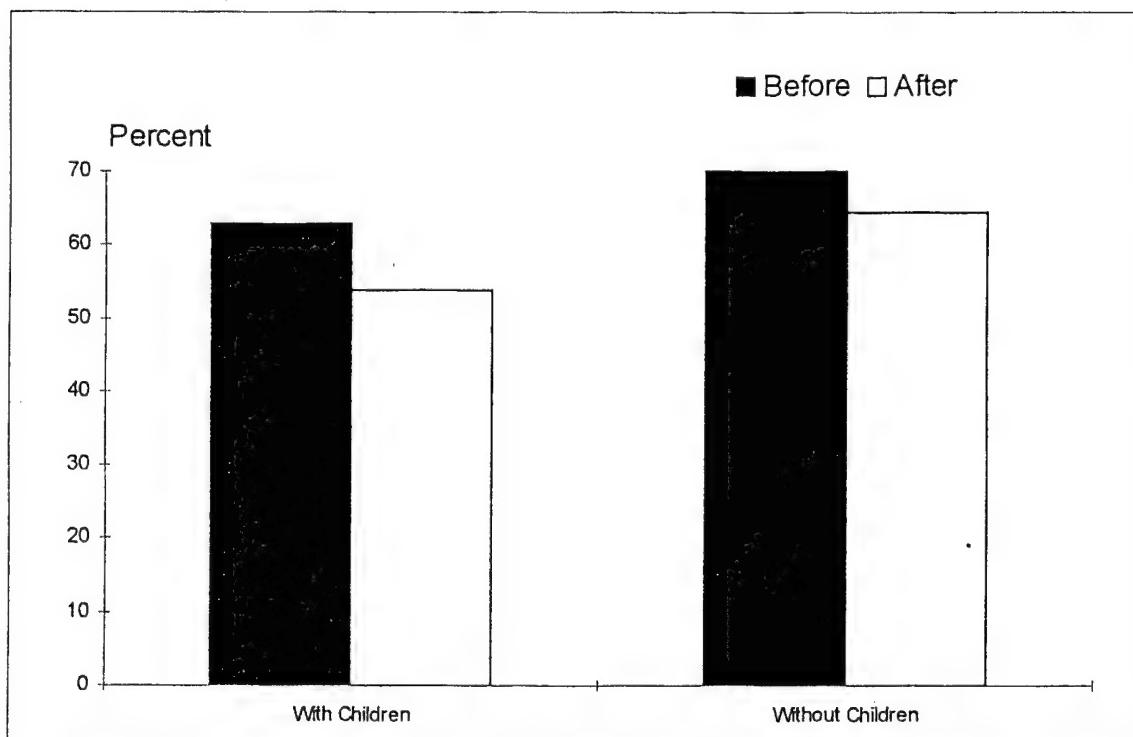
Women With Children Rating Health Status as Very Good or Excellent Before Deployment: n = 53
After Deployment: n = 38

Women Without Children Rating Health Status as Very Good or Excellent Before Deployment: n = 53
After Deployment: n = 38

* Table 13 gives frequencies adn statistical values for this figure.

FIGURE 12.

Women in the Study Who Reported Their Level of Physical Fitness as Very Good to Excellent Before and After Deployment to Operation Desert Shield/Storm



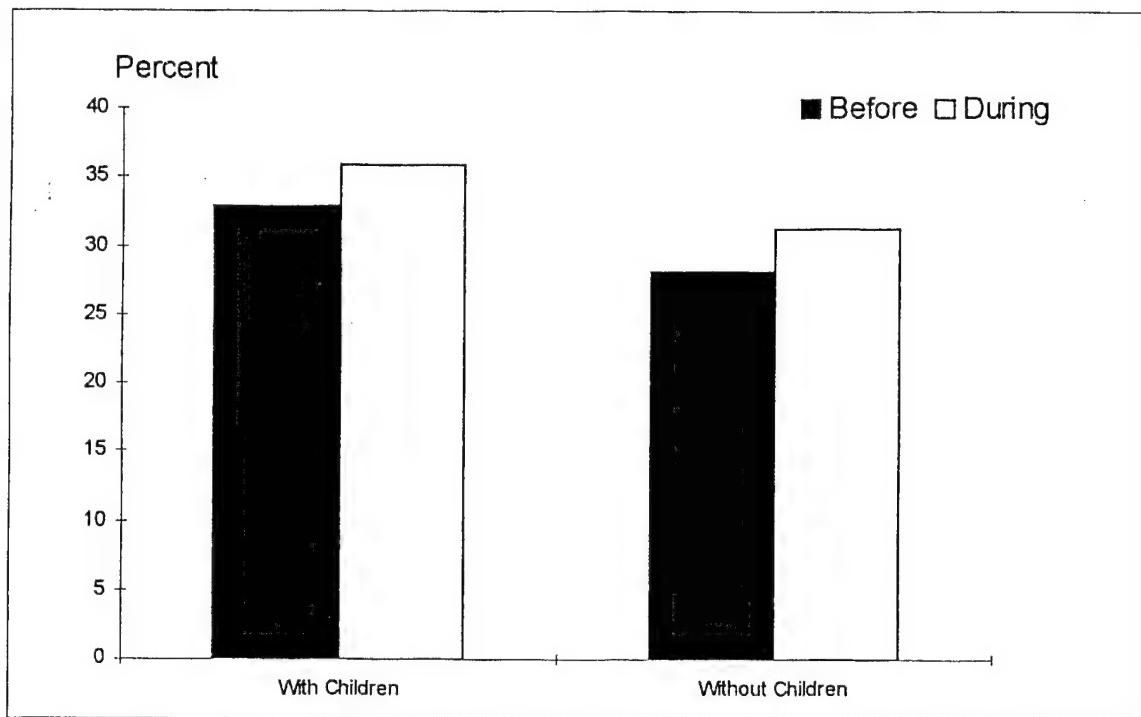
Women With Children Rating Physical Fitness Very Good or Excellent Before Deployment: n = 40
After Deployment: n = 34

Women Without Children Rating Physical Fitness Very Good or Excellent Before Deployment: n = 112
After Deployment: n = 103

* Table 14 gives frequencies and statistical values for this figure.

FIGURE 13.

Comparison of Women in the Study Who Smoked Before and During Deployment to Operation Desert Shield/Storm



Women With Children Who Smoked Before Deployment: n = 21
During Deployment: n = 23

Women Without Children Who Smoked Before Deployment: n = 45
During Deployment: n = 50

* Table 15 gives frequencies and statistical values for this figure.

TABLES

TABLE 1.

**Comparison by Age of Women in the Study Who Deployed to Operation
Desert Shield/Storm**

Count Row %	19-24	25-30	34-39	35-39	40-44	45+	Row Total
With Children	6 10.9	14 25.5	16 29.1	11 20	6 10.9	2 3.6	55 29.1
Without Children	57 42.5	41 30.6	21 15.7	10 7.5	4 3.0	1 0.7	134 70.9

TABLE 2.

**Comparison in Rank of Women in the Study Who Deployed to Operation
Desert Shield/Storm**

Count Row %	E1-E3	E4-E9	Officer	Row Totals
With Children	3	38	21	62
	4.8	61.3	33.9	27.9
	6.5	31.1	38.9	
	1.4	17.1	9.5	
Without Children	43	84	33	160
	26.9	52.5	20.6	72.1
	93.5	68.9	61.1	
	19.4	37.8	14.9	

Pearson Chi Square p = .00078

TABLE 3.

**Comparison by Marital Status of Women in the Study Who Deployed to
Operation Desert Shield/Storm**

Count Row %	Never Married	Married	Divorced	Separated	Row Total
With Children	7	47	9	1	64
	11	73	14	1.6	28.6
	6.7	49.5	41	50	
Without Children	98	48	13	1	160
	61	30	8.0	0.6	71.4
	93.3	50.5	59	50	

TABLE 4.

Comparison of Women in the Study Who Decided to Remain On or Separate From Active Duty After Deployment to Operation Desert Shield/Storm

Count Row %	Remained on Active Duty	Did Not Remain on Active Duty	Row Total
Women With Children	25 39.1	39 60.9	64 28.6
Without Children	82 51.3	78 48.8	160 71.4

Pearson Chi Square p = 0.099
Odds Ratio = 0.61 (0.32<OR<1.15)

TABLE 5.

**Age Categories of Women in the Study Who Separated From Active Duty
After Deployment to Operation Desert Shield/Storm**

Count Row %	With Children	Without Children	Row Total
Ages			
19-24	3 8.3	28 43.1	31 30.7
25-29	9 25	19 29.2	28 27.7
30-34	10 27.8	8 12.3	18 17.8
35-39	7 19.4	6 9.2	13 12.9
40-44	5 13.9	3 4.6	8 7.9
45+	2 5.6	1 1.5	3 3.0

Chi Square
Pearson
Mantel-Haenszel
test for linear
association

p - value
.00292
.00009

TABLE 6.

Comparison by Rank of Women in the Study Who Separated From Active Duty After Deployment to Operation Desert Shield/Storm

Count Row %	Remained on Active Duty	Separated From Active Duty	Row Totals
E1-E3	24 52.2	22 47.8	46 20.6
E4-E9	57 46.3	65 56	123 55.2
Officer	25 46.3	29 53.7	54 24.2

Pearson Chi Square p = 0.865

TABLE 7.

Comparison of Women in the Study Who Reported Gastrointestinal Problems During Deployment to Operation Desert Shield/Storm

Count Row %	Had GI Problems	Did Not Have GI Problems	Row Total
Women With Children	29 45.3	35 54.7	64 28.6
Without Children	46 28.8	114 71.3	160 71.4

Pearson Chi Square p = 0.199
Odds Ratio = 2.05 (1.08<OR<3.91)

TABLE 8.

Comparison of Women in the Study who Reported Emotional Problems While Deployed to Operation Desert Shield/Storm

Count Row %	Had Emotional Problems	Did Not Have Emotional Problems	Row Total
Women With Children	11 17.2	53 82.8	64 28.7
Without Children	28 17.6	131 82.4	159 71.3

Pearson Chi Square p = 0.94
Odds Ratio = 0.97 (0.42<OR<2.21)

TABLE 9.

Comparison of Women in the Study Who Reported Emotional Health Problems Which Persisted After Deployment to Operation Desert Shield/Storm

Count Row %	Persisted	Did Not Persist	Row Total
With Children	7 63.6	4 36.4	11 28.9
Without Children	11 39.3	16 57.1	27 71

Pearson Chi Square $p = 0.199$
Odds Ratio = 2.5 ($0.49 < OR < 13.94$)

TABLE 10.
Comparison of Women by Age Category
Who Reported Emotional Health Problems While Deployed to Operation
Desert Shield/Storm

Count Row %	Had Emotional Health Problems	Did Not Have Emotional Health Problems	Row Total
Ages 19-24	12 19	51 81	63 33.5
25-29	6 11.1	48 88.9	57 28.7
30-34	7 18.9	30 81.1	37 19.7
35-39	4 19	17 81	21 11.2
40-44	2 20	8 80	10 5.3
45+	1 33.3	2 66.7	3 1.6

Chi Square
 Pearson
 Mantel-Haenszel
 test for linear
 association

p - value
 0.805
 0.634

When the ages were combined into <30 and 30+, the OR = 0.59

TABLE 11.

Comparison in Utilization of Health Care by Women in the Study During Deployment to Operation Desert Shield/Storm

Count Row %	Utilized Health Care	Did Not Utilize Health Care	Row Total
Women With Children	43 91.5	4 8.5	47 29.4
Without Children	108 95.6	5 4.4	113 70.6

Chi Square
 Pearson
 Fisher's Exact Test
 1-tail
 2-tail

p - value
 0.199
 0.25
 .45

Odds Ratio = 0.5 (0.11<OR<2.34)

TABLE 12.

**Comparison in Age of Women in the Study Who Utilized Health Care
During Operation Desert Shield/Storm**

Count Row %	With Children	Without Children	Row Total
Ages 19-24	5 13.5	39 43.3	44 34.6
25-29	11 29.7	27 30.0	38 29.9
30-34	14 37.8	14 15.6	28 22
35-39	4 10.8	7 7.8	11 8.7
40-44	2 5.4	2 2.2	4 3.1
45+	1 2.7	1 1.1	2 1.6

Chi Square	p-value
Pearson	0.09
Mantel-Haenszel test for linear association	0.22
Fisher's Exact Test	
1-tail	0.065
2-tail	0.102

TABLE 13.

Women in the Study Who Described Their Health as Very Good to Excellent Before and After Deployment to Operation Desert Shield/Storm

Count Row %	Before Deployment	After Deployment	Row Total
With Children	53 58.2	38 41.7	91
Without Children	142 56.8	108 43.2	250

Pearson Chi Square p = 0.8119
Odds Ratio = 1.06 (0.63<OR<1.78)

TABLE 14.

Women in the Study Who Described Their Level of Physical Fitness as Very Good to Excellent Before and After Deployment to Operation Desert Shield/Storm

Count Row %	Before Deployment	After Deployment	Row Totals
With Children	40 54.1	34 45.9	74
Without Children	112 52.1	103 47.9	215

Pearson Chi Square p = 0.7707
Odds Ration = 1.08 (0.62<OR<1.90)

TABLE 15.

Comparison of Women in the Study Who Smoked Before and During Deployment to Operation Desert Shield/Storm

Count Row %	Smoked Before Deployment	Smoked During Deployment	Row Total
With Children	21 47.7	23 52.3	44
Without Children	45 47.4	50 52.6	95

Pearson Chi Square p = 0.968
Odds Ratio = 1.01 (0.47<OR<2.21)

APPENDICES

**Availability, Accessibility, and Adequacy of Health Care
Provided to Air Force Women In Theater During
Operation Desert Shield/Desert Storm**

Before we start, I would like to confirm some information provided by the Air Force.

ODS/S Survey Number: 902

Date of birth:

Occupation Category: ..Operations ..Medical ..Logistics/Services ..Maintenance
..Communications/Intelligence ..Security ..Engineering

Rank (Paygrade): ..E1—E3 ..E4—E9 ..Officer (O1-O10)

1. How would you describe your health?

	Poor	Fair	Good	Very good	Excellent
Before ODS/S	<input type="checkbox"/>				
During ODS/S	<input type="checkbox"/>				
After ODS/S	<input type="checkbox"/>				

2. How would you describe your physical fitness level?

	Poor	Fair	Good	Very good	Excellent
Before ODS/S	<input type="checkbox"/>				
During ODS/S	<input type="checkbox"/>				
After ODS/S	<input type="checkbox"/>				

3. Before deployment, did you have any long-term or recurring health problems for which you received medical care?

Yes No.....

If yes, list conditions _____ / _____

4. Where did you get your routine health care?

Location	Before	During ODS/S	After
Military clinic/hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Civilian physician (health insurance)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Civilian physician (no insurance)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VA medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Civilian emergency room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of above	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Where did you get your ob-gyn health care?

Location	Before	During ODS/S	After
Military clinic/hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Civilian physician (health insurance)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Civilian physician (no insurance)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VA medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Civilian emergency room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of above	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Air Force ODS/S Women's Health Survey

Now, I will ask you to list any medical conditions that you experienced during ODS/S. The following questions pertain only to medical conditions during ODS/S. I will also ask you if the particular condition began before ODS/S and/or if it persisted after ODS/S. If you have medical conditions that started only after ODS/S, you will have an opportunity to list those in the summary section.

6. List any medical conditions you experienced during ODS/S. The following examples are provided to prompt your memory:

<u>BODY SYSTEM INVOLVED</u>	<u>DURING ODS/S</u>	<u>START BEFORE</u>	<u>PERSIST AFTER</u>
RESPIRATORY ILLNESSES — upper respiratory infections, colds, bronchitis, asthma, pneumonia, pharyngitis, otitis, sinusitis, other (specify): _____	-----	-----	-----
GASTROINTESTINAL ILLNESSES — diarrhea, gastroenteritis, dysentery (diarrhea with blood and mucus), gastritis, food poisoning, constipation, intestinal parasites, other (specify): _____	-----	-----	-----
DERMATOLOGICAL CONDITIONS — viral rashes or lesions, cellulitis, fungal or bacterial infections, contact dermatitis, dermatitis caused by insect bites, skin ulcers and scabs, other (specify): _____	-----	-----	-----
GYNECOLOGICAL CONDITIONS — infectious disease (gonorrhea, syphilis, chlamydia, genital herpes); pelvic inflammatory disease; complications of menstruation; pregnancy; genital rashes; bladder infection; abortion, miscarriage, other (specify): _____	-----	-----	-----
EYE ILLNESSES/INJURIES — conjunctivitis, eye infection, eye irritation, corneal abrasions, foreign bodies, solar injury, laser injury, injury not associated with trauma reported under orthopedic and surgical injuries, other (specify): _____	-----	-----	-----
EMOTIONAL HEALTH & MENTAL WELL-BEING — depression (felt depressed, discouraged, wondered if anything in life was worthwhile, felt life was not interesting); situational reactions (felt that you were under so much stress that you could not stand it); anxiety (felt nervous, fearful, frightened, tense, restless, or scared for no apparent reason); psychotic (saw or heard things that were not there, felt that others were talking about you or plotting against you); suicidal (tried to take your own life, thought seriously about committing suicide, felt that being dead was better than living); behavioral reaction (to medication or other substance); other (specify): _____	-----	-----	-----
ORTHOPEDIC/SURGICAL INJURIES — fractures, sprains, lacerations, abrasions, internal injuries, burns and thermal injuries (not sunburn, non-environmental animal bites (usually mammal or reptile), other trauma, including battle, non battle, occupational, and recreational incidents, other (specify): _____	-----	-----	-----
MEDICAL ILLNESSES — cardiac related problems (chest pain, hypertension); neurological problems (headaches, convulsions, fainting spells); allergic reactions (systemic reactions to venomous bites/stings); appendicitis; hepatitis; other internal conditions (not related to trauma); fevers not apparently associated with diagnosed illness or injury, other (specify): _____	-----	-----	-----
PROBLEMS WITH MOOD OR MIND-ALTERING SUBSTANCES — alcohol misuse, marijuana use, pharmaceuticals (prescribed or not), other (specify): _____	-----	-----	-----
HEAT/COLD INJURIES — heat stroke, heat cramps, heat exhaustion, dehydration, sunburn, frostbite, hypothermia, chilblain, other (specify): _____	-----	-----	-----
DENTAL — dental injury, disease, or condition requiring care by a dentist, other (specify): _____	-----	-----	-----
OTHER CONDITIONS NOT LISTED ABOVE — (specify): _____	-----	-----	-----

If None, skip to Question 20, page 5.

Air Force ODS/S Women's Health Survey

Medical condition list from Question 6, 'DURING ODS/S' column.

1 _____

2 _____

3 _____

4 _____

5 _____

Now for each medical condition, answer the following questions: # 1 # 2 # 3 # 4 # 5

7. During ODS/S, did you seek medical care for this problem?

Yes
No

8. Would you have sought care for this problem if you had not been in the Persian Gulf or were back in the States?

Yes
No

9. About how many times were you seen by medical personnel for this condition?

None
Only once
2-3 times
4 or more times

10. How satisfied were you with the care and treatment you received for this condition?

Very dissatisfied
Somewhat dissatisfied
Neither dissatisfied nor satisfied
Somewhat satisfied
Very satisfied

11. Did you see a male or female health care provider for this problem?

Male
Female
Both
Don't remember

#1 #2 #3 #4 #5

12. Did you feel embarrassed about this particular medical problem?

Yes
 No

13. How long was it from the time you noticed this problem until you were seen by medical personnel?

Immediately
 A day or two
 Within a week (3-7 days)
 Several weeks (More than 1 week)

14. How soon do you think you should have been seen?

Immediately
 A day or two
 Within a week (3-7 days)
 Several weeks (More than 1 week)

15. If you did not see a health care provider for this condition, what was the major reason why not?

(check all that apply)

#1 #2 #3 #4 #5

- 1) I did not think it was severe or important enough
- 2) I was told it was not a severe or important problem
- 3) I did not have confidence in the health care providers
- 4) I did not have enough time during the duty day
- 5) I could not get an appointment or get to sick call
- 6) The medical facility was too far from my duty station
- 7) I did not have transportation to the medical facility
- 8) I was afraid of finding out what was wrong
- 9) I was afraid I would be sent back to the States
- 10) My friends would make fun of me
- 11) There were no female physicians
- 12) I was too embarrassed to see a health care provider about it
- 13) My supervisor would not let me take time off
- 14) I didn't know medical care was available for this problem
- 15) The medical facility was not open when I could go
- 16) I did not want it on my record
- 17) I would have to wait too long before being seen
- 18) Other (specify): _____

Air Force ODS/S Women's Health Survey

Now, I would like to ask you a few questions about how satisfied you were with the health care available to you during ODS/S.

16. How would you rate the professionalism and concern of the health care providers regarding your medical problems?

Poor	Fair	Good	Very good	Excellent
<input type="checkbox"/>				

17. How would you rate the sensitivity of the health care providers to your concerns?

Poor	Fair	Good	Very good	Excellent
<input type="checkbox"/>				

18. How would you rate the regard for your privacy by health care providers during any physical examination or laboratory procedure:

Poor	Fair	Good	Very good	Excellent
<input type="checkbox"/>				

19. How often did you personally use medical services during ODS/S?

None 1 2 3 4 or more times

20. How would you rate the overall quality of medical care during ODS/S?

Poor	Fair	Good	Very good	Excellent
<input type="checkbox"/>				

21. How would you rate the medical services in the Persian Gulf during ODS/S:

	Poor	Fair	Good	Very good	Excellent
Physicians	<input type="checkbox"/>				
Other providers	<input type="checkbox"/>				
Support staff	<input type="checkbox"/>				
Facilities	<input type="checkbox"/>				
Accessibility	<input type="checkbox"/>				
Availability	<input type="checkbox"/>				
Adequacy	<input type="checkbox"/>				
Compared to peacetime	<input type="checkbox"/>				
Overall	<input type="checkbox"/>				

Air Force ODS/S Women's Health Survey

This part of the survey requests general information that will help the Air Force identify the need for new programs.

22. What state did you live in the year prior to being deployed? _____

23. What was your employment status just before being deployed to the Persian Gulf (check all that apply)?

Unemployed.... Full-time outside home... Part time outside home...
Homemaker.... Reserve/National Guard... Active duty.....

24. Prior to deployment, did you exercise at least 3 times weekly for 30 minutes?

Yes..... No..... Not at all.....

25. What was your marital status at the time of the deployment?

Never married..... Married..... Divorced..... Separated.....

If Never married, skip to Question 29, this page.

26. Did your spouse serve in ODS/S?

Yes No N/A

27. Have you experienced a divorce or separation since ODS/S?

Yes No

**28. What was the employment status of your spouse at the time of your deployment?
(check all that apply)**

Unemployed **Full-time outside home** **Part time outside home**
Homemaker **Reserve/natl. guard** **Active duty**.....

29. How did your total household income change during ODS/S?

Increased Decreased.... Stayed the same ...

30. Did you have children at home or in school at the time of the deployment?

Yes No

If yes, how many? _____ How old? _____ / _____ / _____ / _____ / _____ / _____

If yes, who took care of the children (check all that apply)?

Relative...□ Friend...□ Neighbor...□ Day care facility...□

Other..... (please specify)

31. For most of your life, would you say your health has been:

Excellent...□ Very Good...□ Good...□ Fair...□ Poor...□

Air Force ODS/S Women's Health Survey

32. Did you smoke cigarettes? Yes No If yes, about how many per day?

Before ODS/S..... _____
During ODS/S..... _____
After ODS/S..... _____

33. If you had a choice, would you prefer (or select) a female health care provider?

Yes No Doesn't matter

For your routine care
For your OB/GYN care.....
For mental health counselling.....

34. Did you have employer provided health care, private health insurance, or access to military medical care?

Yes No Don't know

Before ODS/S.....
During ODS/S.....
After ODS/S.....

35. Did you have employer provided dental care, private dental insurance, or access to military dental care?

Yes No Don't know

Before ODS/S.....
During ODS/S.....
After ODS/S.....

36. Would a short term government sponsored supplemental health insurance policy have been of help to you or your family?

Yes No Don't know

Before ODS/S.....
During ODS/S.....
After ODS/S.....

37. Would you have purchased a short term government supplemental health insurance policy if it had been made available to you?

Yes No Don't know

Before ODS/S.....
During ODS/S.....
After ODS/S.....

38. Are you still on active duty?

Yes No.....

Air Force ODS/S Women's Health Survey

39. At what base(s) were you stationed for most of your ODS/S service?

40. Overall, how would you rate your health care experience and the health care providers during ODS/S regarding the following issues:

	Poor	Fair	Good	Very good	Excellent
The health care that I received was.....	<input type="checkbox"/>				
The health care providers were knowledgeable and competent to treat my conditions.....	<input type="checkbox"/>				
The health care providers really cared about me and my health	<input type="checkbox"/>				
The health care providers personally spent enough time with me	<input type="checkbox"/>				
The health care providers answered all my questions honestly and completely.....	<input type="checkbox"/>				
The health care providers made sure that I understood what I had been told about my health problems and medications	<input type="checkbox"/>				
The health care providers made a special effort to explain my symptoms and problems completely to me	<input type="checkbox"/>				

41. Do you have any comments or additional information you would like to share with the research team? Yes No.....

Comments: _____

42. Would you like a copy of the results of this survey when available? Yes ... No....

43. Do you have the toll-free phone number for the Desert Storm Hotline? Yes ... No....

44. Would you like the toll-free number for the Desert Storm Hotline? Yes ... No....

Thank you for your participation in this study.

Dr. Herbold can be reached at (210) 567-5930, 24 hour VoiceMail at (210)497-5263, or mail:
UT School of Public Health, 7703 Floyd Curl Drive, San Antonio, TX 78284-7976

SUGGESTED READINGS FOR WOMEN'S HEALTH

Active Duty Air Force Behavioral Risk Factor Surveillance Study (BRFSS) Pilot Report.
Brooks AFB, Tx, Office For Prevention and Health Service Assessment, 1995.

Aday L: Designing and Conducting Health Surveys. Edited by Jossey- Bass Publishers.,
San Francisco, California, 1989

Amen DG, Jellen L, Merves E, Lee R E: Minimizing the Impact of Deployment
Separation on Military Children: Stages, Current Preventive Efforts, and System
Recommendations. *Military Medicine* 1988; 53 (9): 441-446.

Birgenheier P: Parents and Children, War and Separation. *Pediatric Nursing* 1993; 19(5):
471-476.

Blount B, Curry A, Lubin G: Family Separations in the Military. *Military Medicine* 1992;
157; 76-80.

Bowen G, Orthner D, Zimmerman L: Family Adaptation of Single Parents in the United
States Army. *Family Relations* 1993; 42: 293-304.

Bowen G, Orthner D: Single Parents in the U.S. Air Force. *Family Relations* 1986; 35:
45-52.

Brisson C, Vezina M, Vinet A: Health Problems of Women Employed in Jobs Involving
Psychological and Ergonomic Stressors: The Case of Garment Workers in Quebec.
Women & Health 1992; 18 (3): 49-65.

Caldwell B M, Impact of Day Care on the Child. *Pediatrics* 1993; 91(1): 225-228.

Casey VA, Dwyer ST, Coleman KA, Krall EA, Gardner J, Valadin I: Accuracy of Recall
by Middle-aged Participants in a Longitudinal Study of Their Body Size and Indices
of maturation Earlier in Life. *Annals of Human Biology* 1991; 18:155-166

Cohn W, Pasternak P: The Six Week War: Fighting Numbers. *US News & World
Report* 1991; March 1174.

Collier: Health Behaviors of Women. *Nursing Clinics of North America* 1982;
17(1):121-126.

Connors D: Women's "Sickness": A Case of Secondary Gains or Primary Losses:
Advances in Nursing Science 1985; Apr 1-15.

- Cook, A: Illness and Injury Among U.S. Prisoners of War from Operation Desert Storm. *Military Medicine* 159: 437-442. 1994
- Coulter A, Vassey M, McPherson K: The Ability of Women to Recall Their Oral Contraceptive Histories. *Contraception* 1986; 33(2): 127-137.
- Cox C G: Interruption in Parenting: The Incarcerated Mother. *Topics in Clinical Nursing* 1984; 49 - 59.
- Culbertson AL, Rosenfeld P: Assessment of Sexual Harassment in the Active Duty Navy. *Military Psychology* 1994; 6(2): 60-93.
- Dept. of Defense: Comprehensive Clinical Evaluation Program for Gulf War Veterans, Report on 10,020 Participants. Aug 1995.
- Draude TV: Women in Combat. *Aviation Space and Environmental Medicine* 1995; 66(12):1207-1211.
- Fasso H: Single Parent in the Workplace. *American Association of Occupational Health Nursing Journal* 1987; 35(7):321322.
- Fogel CI: Hard Time: The stressful Nature of Incarceration for Women. *Issues in Mental Health Nursing* 1993; 14: 367-377.
- Forde C: "Women Warriors": Representations of Women Soldiers in British Daily Newspaper Reports of the Gulf War (January to March 1991. (Heterosexual) Politics. *Gender and Society: Feminist Perspective* 1995; 108 - 122.
- Fullerton C, Ursano R: Health Care Delivery in the High-Stress Environment of Chemical and Biological Warfare. *Military Medicine* 1994; 159(7): 524-528.
- Fullerton C, Ursano R: The Chemical and Biological Warfare Environment: Psychological Responses And Social Support In A High Stress Environment. *J Applied Sociology and Psychology* 1994; 22:1608-1624
- Gijsbers van Wijk C, van Vliet K, Kolk A, Everaerd W: Symptom Sensitivity and Sex Differences in Physical Morbidity: A Review of Health Surveys in the United States and the Netherlands. *Women & Health* 1991; 17 (1): 91-124.
- Graham H. Behaving Well: Women's Health Behavior in Context. In *Women's Health Counts*. Edited by Roberts H, NY, Routledge. 195 1993
- Hall, DP: Stress, Suicide, and Military Service During Operation Uphold Democracy. *Military Medicine* 1995; 161: 159-162.

- Hargrove H, Keller C: Young black Women: Defining Health. *Journal of National Black Nurses Association* 1993; 6(2): 3-14.
- Hines J: A Comparison of Clinical diagnosis Among Male and Female Soldiers Deployed During the Persian Gulf War. *Military Medicine* 1993; 158: 99-100.
- Hines, JF: Ambulatory Health Care Needs of Women Deployed with Heavy Armor Division During the Persian Gulf War. *Military Medicine* 1992; 157:219-221.
- Hoiberg A, Ernst J: Motherhood in the Military: Conflicting Roles for Navy Women? DTIC Rpt# 79-31, 6 Dec 1982
- Institute of Medicine: Recommendations for Research on the Health of Military Women. National Academy Press, Washington D.C., 1995
- Kammerman SB, Kahn AJ, Kingston P: Maternity Policies and Working Women. Irvington, NY; Columbia University Press. 1983
- Kleiger J, Kennedy D, Becker D and Smith S: "Children, Don't Forget Me": A Resource and Support Group for Deployed Parents During Operations Desert Shield and Desert Storm. *Health & Social Work* 1993; 18 (3): 237-240.
- Knapp T, Newman S: Variables Related to Psychological Well Being of Army Wives During the Stress of an Extended Military Separation. *Military Medicine* 1993; 158 (2): 77-80.
- Landymore R, Voynovich P, Henderson B: Casualties Treated During MILCON 92: Relevance to Training Militia Medical Personnel. *Military Medicine* 1994; 159 (7): 484-487.
- Lee I: Second International Conference on Wartime Medical Services. *Medicine and War* 1991; 120-128.
- Lenhart SA, Klein F, Falcao P, Helan E, Smith K: "Gender Bias Against and Sexual Harassment of AMWA Members in Massachusetts". *Journal of the American Medical Women Association* 1991; 46: 121-125.
- Levai M, Kaplan S, Daly K, McIntosh G: The Effect of the Persian Gulf Crisis on the Psychiatric Hospitalization of Navy Children and Adolescents. *Child Psychiatry and Human Development* 1994; 24(4): 245-254.
- Long BC, Kahn SE: Women, Work and Coping - A Model Multidisciplinary Approach to Workplace Stress. McGill-Queen's University Publishers, 1993.

- Macram S, Clarke L and Joshi H: Women's Health: Dimensions and Differentials. Social Science and Medicine 1996; 42(9) : 1203-1216.
- Medway FJ, Davis KE, Cafferty TP: Family Disruption and Adult Attachment Correlates of Spouse and Child Reaction to Separation Due to Operation Desert Storm. Journal of Social and Clinical Psychology 1995; 14(2): 97-118.
- McCarroll J, Ursano R, Fullerton C, Lundy A: Traumatic Stress of a Wartime Mortuary, Anticipation of Exposure to Mass Death. Journal of Nervous & Mental Disease, 1993; 181 (9): 545-551.
- Military Medicine Guidelines for Contributors. Military Medicine 1996; 161(5):A-7.
- Miller K: The Tiny Victims of Desert Storm. Life 1995; Nov : 46-62.
- Muller CF: Health Care and Gender. NY, Russell Sage Foundation. 1990
- Nice D: Determinants of the Delegation of Healthcare Aboard Ships with Women Assigned. Military Medicine 1990; 155: 546-548.
- Office of Prevention and Health Service Assessment (OPHSA) at Brooks AFB, San Antonio Texas.
- Pawl JH: Impact of Day Care on Parents and Family: Pediatrics 1993; 91(1): 222-224.
- Robbins AS, Herbold JR, Cooper S: Availability, Accessibility and Adequacy of Health Care Provided to USAF Active Duty Women in Theater During Operation Desert Shield/Desert Storm. Office For Prevention and Health Service Assessment, Brooks AFB, Tx, 1995.
- Rognmann K, Haggerty R: Daily Stress, Illness, and Use of Health Services in Young Families. Pediatric Research 1973; 7: 520-526.
- Semchuk KM, Eakin ME: Children's Health and Illness Behavior: The Single Working Mother's Perspective. Canadian Journal of Public Health 1989; 80:346.
- Snyder A: Periodic Marital Separation and Physical Illness. American Journal of Orthopsychiatry 1978; 48(4): 637-643.
- Solomon Z, Margalit C, Waysman M, Bleich A: In the Shadow of the Gulf War: Psychological Distress, Social Support and Coping Among Israeli Soldiers in a High Risk Area. Israel Journal of Medical Sciences 1991; 27(11-12): 687-695.

- Starling SP, Holden JR, Jenny C: Abusive Head Trauma: The Relationship of Perpetrators to Their Victims. *Pediatrics* 1995; 95(2): 259-262.
- Stretch RH, Bliese PD, Marlowe DH, Wright KM Knudson KH, Hoover CH: Psychological Health of Gulf War Era Military Personnel. *Military Medicine* 1996; 161: 257-261.
- Snyder A: Periodic Marital Separation and Physical Illness. *American Journal of Orthopsychiatry* 1978; 48(4): 637-643.
- Solomon Z, Margalit C, Waysman M, Bleich A: In the Shadow of the Gulf War: Psychological Distress, Social Support and Coping Among Israeli Soldiers in a High Risk Are. *Israel Journal of Medical Science* 1991; 27(11-121): 687-695.
- Sullivan M, Karisson J, Bengtsson C, Furunes B, Lapidus L, Lissner L: <<The Goteborg Quality of Life Instruments>> - A psychometric evaluation of assessments of symptoms and well being among women in a general population. *Scandinavian Journal of Health Care* 1993; 11: 267-275.
- Tibblin G, Bengtsson C, Furunes B, Lapidus L: Symptoms by Age and Sex. *Scandinavian Journal of Primary Health Care* 1990; 8: 9-17.
- Turshen M: The Impact of Sexism on Women's Health and Health Care. *Journal of Public Health Policy* 1993; 14(2): 164-172.
- Verbrugge L: Sex Differentials in Health. *Prevention* 1982; 97(5): 417-437.
- Walters V: Women's Views of Their Main Health Problems. *Canadian Journal of Public Health* 1992; 83(5): 371-374.
- Watanabe H, Jensen P, Rosen L, Newby J, Richters J, Cortes R: Soldier Functioning Under Chronic Stress: Effects of Family Member Illness. *Military Medicine* 1995; 160: 457-461.
- Weiss T, Ashton C: Access of Women Veterans to Veterans Affairs Hospitals. *Women & Health* 1994; 21 (2/3): 23-38.
- Wintermeyer S, Pina J, Cremins J, Heier J: The Inpatient Experience of a US Army Combat Support Hospital in the Persian Gulf During Non-Combat and Combat Periods. *Military Medicine* 1994; 159: 746-751.
- Yeatman GW: Paternal Separation and the Military Dependent Child. *Military Medicine* 1981; 146: 320 - 322.

REFERENCES

1. Active Duty Air Force Behavioral Risk Factor Surveillance (BRFSS) Pilot Report. Brooks AFB, Tx, Office For Prevention & Health Service Assessment, 1995.
2. Amen DG, Jellen L, Merves E, Lee R E: Minimizing the Impact of Deployment Separation on Military Children: Stages, Current Preventive Efforts, and System Recommendations. *Military Medicine* 1988; 53 (9): 441-446.
3. Birgenheier P: Parents and Children, War and Separation. *Pediatric Nursing* 1993; 19(5): 471-476.
4. Blount B, Curry A, Lubin G: Family Separations in the Military. *Military Medicine* 1992; 157; 76-80.
5. Casey VA, Dwyer ST, Coleman KA, Krall EA, Gardner J, Valadin I: Accuracy of Recall by Middle-aged Participants in a Longitudinal Study of Their Body Size and Indices of Maturation Earlier in Life. *Annals of Human Biology* 1991; 18:155-166
6. Cohn W, Pasternak P: The Six Week War: Fighting Numbers. *US News & World Report* 1991; March 1174.
7. Connors D: Women's "Sickness": A Case of Secondary Gains or Primary Losses: *Advances in Nursing Science* 1985; Apr 1-15.
8. Cox C G: Interruption in Parenting: The Incarcerated Mother. *Topics in Clinical Nursing* 1984; 49 - 59.
9. Culbertson AL, Rosenfeld P: Assessment of Sexual Harassment in the Active Duty Navy. *Military Psychology* 1994; 6(2): 60-93.
10. Drude TV: Women in Combat. *Aviation Space and Environmental Medicine* 1995; 66(12): 1207-1211.
11. Encyclopedia Britannica volume 9: 265. 1993
12. Encyclopedia Britannica volume 12: 309. 1993
13. Fogel CI: Hard Time: The stressful Nature of Incarceration for Women. *Issues in Mental Health Nursing* 1993; 14: 367-377.
14. Forde C: "Women Warriors": Representations of Women Soldiers in British Daily Newspaper Reports of the Gulf War (January to March 1991. (Heterosexual) politics. *Gender and Society: Feminist Perspective* 1995; 108 - 122.

15. Fullerton C, Ursano R: Health Care Delivery in the High-Stress Environment of Chemical and Biological Warfare. *Mil Med* 1994; 159(7): 524-528.
16. Gijsbers van Wijk C, van Vliet K, Kolk A, Everaerd W: Symptom Sensitivity and Sex Differences in Physical Morbidity: A Review of Health Surveys in the United States and the Netherlands. *Women & Health* 1991; 17 (1): 91-124.
17. Graham H. Behaving Well: Women's Health Behavior in Context. In *Women's Health Counts*. Edited by Roberts H, NY, Routledge. 195 1993
18. Hall, DP: Stress, Suicide, and Military Service During Operation Uphold Democracy. *Mil Med* 1995; 161: 159-162.
19. Hines, JF: Ambulatory Health Care Needs of Women Deployed with Heavy Armor Division During the Persian Gulf War. *Mil Med* 1992; 157:219-221.
20. Hines J: A Comparison of Clinical diagnosis Among Male and Female Soldiers Deployed During the Persian Gulf War. *Mil Med* 1993; 158: 99-100.
21. Hoiberg A, Ernst J: Motherhood in the Military: Conflicting Roles for Navy Women? DTIC Rpt# 79-31, 6 Dec 1982
22. Institute of Medicine: Recommendations for Research on the Health of Military Women. 1995
23. Kleiger J, Kennedy D, Becker D and Smith S: "Children, Don't Forget Me": A Resource and Support Group for Deployed Parents During Operations Desert Shield and Desert Storm. *Health & Social Work* 1993; 18 (3): 237-240.
24. Lenhart SA, Klein F, Falcao P, Phelan E, Smith K: "Gender Bias Against and Sexual Harassment of AMWA Members in Massachusetts". *JAMWA* 1991; 46: 121-125.
25. Macram S, Clarke L and Joshi H: Women's Health: Dimensions and Differentials. *Social Sci Med* 1996; 42(9) : 1203-1216.
26. Military Medicine Guidelines for Contributors. *Mil Med* 1996; 161(5):A-7.
27. Nice D: Determinants of the Delegation of Healthcare Aboard Ships with Women Assigned. *Mil Med* 1990; 155: 546-548.
28. Office of Prevention and Health Service Assessment (OPHSA) at Brooks AFB, San Antonio Texas.

29. Robbins AS, Herbold J, Cooper S: Availability, Accessibility and Adequacy of Health Care Provided to USAF Active Duty Women in Theater During Operation Desert Shield/Desert Storm. October 1995. Armstrong Laboratory/PS, Brooks AFB Tx 78235-5241
30. Rognmann K, Haggerty R: Daily Stress, Illness, and Use of Health Services in Young Families. *Ped Res* 1973; 7: 520-526.
31. Snyder A: Periodic Marital Separation and Physical Illness. *Am J Orthopsychiat* 1978; 48(4):637-643.
32. Stretch RH, Bliese PD, Marlowe DH, Wright KM Knudson KH, Hoover CH: Psychological Health of Gulf War Era Military Personnel. *Mil Med* 1996; 161: 257-261.
33. Solomon Z, Margalit C, Waysman M, Bleich A: In the Shadow of the Gulf War: Psychological Distress, Social Support and Coping Among Israeli Soldiers in a High Risk Area. *Israel J Med Sci* 1991; 27(11-12): 687-695.
34. Tibblin G, Bengtsson C, Furunes B, Lapidus L: Symptoms by Age and Sex. *Scand J Prim Health Care* 1990; 8: 9-17.
35. Turshen M: The Impact of Sexism on Women's Health and Health Care. *J of Public Health Policy* 1993; 14(2): 164-172.
36. Verbrugge L: Sex Differentials in Health. *Prevention* 1982; 97(5): 417-437.
37. Walters V: Women's Views of Their Main Health Problems. *Can J Public Health* 1992; 83(5): 371-374.
38. Weiss T, Ashton C: Access of Women Veterans to Veterans Affairs Hospitals. *Women & Health* 1994; 21 (2/3): 23-38.
39. Wintermeyer S, Pina J, Cremins J, Heier J: The Inpatient Experience of a US Army Combat Support Hospital in the Persian Gulf During Non-Combat and Combat Periods. *Mil Med* 1994; 159: 746-751.
40. Yeatman GW: Paternal Separation and the Military Dependent Child. *Mil Med* 1981; 146: 320 - 322.

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